In the Claims:

1-32. (Cancelled)

33. (Previously presented) A plasmid comprising donor DNA not naturally occurring in vaccinia virus encoding a peptide foreign to vaccinia virus, said donor DNA present within a non-essential region of a segment of vaccinia virus DNA otherwise co-linear with portions of the vaccinia virus genome such that DNA from a non-essential region of vaccinia virus is flanking said donor DNA, and whereby when incorporated into vaccinia virus by *in vivo* recombination expression of the donor DNA is under vaccinia control.

34. (Previously presented) The plasmid of claim 33 wherein the donor DNA comprises a herpes simplex virus TK gene.

35. (Previously presented) The plasmid of claim 33 wherein the segment of vaccinia virus DNA otherwise co-linear with portions of the vaccinia virus genome is the HindIII F-fragment of the vaccinia virus genome.

36. (Previously presented) The plasmid of claim 35 wherein for expression there is a promoter within the F-fragment.

37. (Previously presented) The plasmid of claim 36 wherein the donor DNA comprises a BamHI TK gene of herpes simplex virus.

38. (Previously presented) The plasmid of claim 34 wherein the segment of vaccinia virus DNA otherwise co-linear with portions of the vaccinia virus genome is the AvaI H-fragment of the vaccinia virus genome.

39. (Previously presented) The plasmid of claim 35 which is pDP137.

40. (Previously presented) The plasmid of claim 38 which is pdP202TK/E.

41-52. (Cancelled)

53. (Currently amended) Donor DNA comprising isolated DNA not naturally occurring in vaccinia virus flanked by DNA sequences homologous with portions of a non-essential region of the vaccinia genome.